

REMARKS

Claims 9-15, 17, 19, and 23 were rejected under 35 U.S.C. §102(b) as being anticipated by US Pat. 6,099,471 (Torp et al.) and Claim 16 was rejected under 35 U.S.C. §103(a) as being unpatentable over Torp et al. and further in view of US Pat. 4,501,279 (Seo). The independent claim in this case, Claim 9, describes a method for optimizing the display of Doppler ultrasound information comprising receiving Doppler signal information, including at least some Doppler signal information which is not used to produce a displayed Doppler image; processing Doppler signal information for display of a Doppler image in a display area; and analyzing Doppler signal information which is not used to produce a displayed Doppler image to optimize at least one of the display parameters of the PRF, the color baseline, the color range polarity, or the range of color pixel values for display of the processed Doppler signal information in the display area. The so-called "hidden Doppler" which is received but not used for the display is used to optimize one of several specific parameters of a Doppler display which are the display parameters of the PRF, the color baseline, the color range polarity, or the range of color pixel values. The Doppler information which the user never sees is thus used to automatically produce a Doppler image of the displayed information which is optimized for viewing, as the hidden Doppler will be received under the same conditions as the displayed Doppler information and thus manifests the characteristics needed to optimize the displayed information.

The Examiner has cited the Torp et al. patent which has never been cited in this case before. The Examiner contends that Torp et al. anticipates Claim 9, among others. The Torp et al. patent is concerned with a form of Doppler imaging called "strain velocity." Strain is a

measure of tissue displacement and is useful in diagnosing the heart where it can measure the displacement of the heart muscle as it stretches during contraction and relaxes after each heartbeat. Strain velocity is the rate of change of strain. Torp et al. produce a strain velocity image by acquiring tissue Doppler signals over the image field and estimating the Doppler velocity at each point in the image. The strain velocity of each point of the myocardium is calculated by taking a derivative of the Doppler velocity estimates and displaying these Doppler velocity derivatives in corresponding colors throughout the myocardium. Thus, strain velocity imaging is another form of Doppler imaging, just as spectral Doppler, colorflow (velocity Doppler) imaging, tissue Doppler imaging, acceleration, variance and power Doppler are other forms of Doppler imaging.

Furthermore, Torp et al. use all of the Doppler signals acquired for their images. There is no suggestion whatsoever of the acquisition of any Doppler signals that are not used in images. There is no suggestion of using any signals, Doppler or otherwise, hidden or displayed, to optimize a Doppler image or any other type of image.

These conclusions are supported by the enclosed Declaration of Dr. Ivan Salgo, an MD who is highly qualified in the practice of echocardiography. As Dr. Salgo makes clear, the strain velocity images of Torp et al. are derived from tissue Doppler signals. This is a form of Doppler imaging. Dr. Salgo also points out that there is no intimation in Torp et al. of acquiring Doppler signals that are not used for imaging. There is no intimation of any use of undisplayed Doppler signals by Torp et al. to optimize the Doppler parameters of the PRF, the color baseline, the color range polarity, or the range of color pixel values. Not one of these parameters is mentioned in Torp et al. except for PRF, for which no automated optimization is shown or suggested.

Dr. Salgo's Declaration in regard to Torp et al. could not be earlier presented in this case because Torp et al. was not cited in this case until the present Office action.

It is therefore respectfully submitted that the use of Torp et al. to reject any of the claims in this application is inapposite, as Torp et al. bears little relation to the claims of the present invention. Accordingly it is respectfully requested that the rejection of Claims 9-17, 19 and 23 on the basis of Torp et al. either alone or in combination with Seo be withdrawn and the case passed on to issuance.

Respectfully submitted,

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